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19702A GSRS, MISSILE NUMBER 021, ROUND NUMBER B-18, 14 JUNE 197--ETC(U)  
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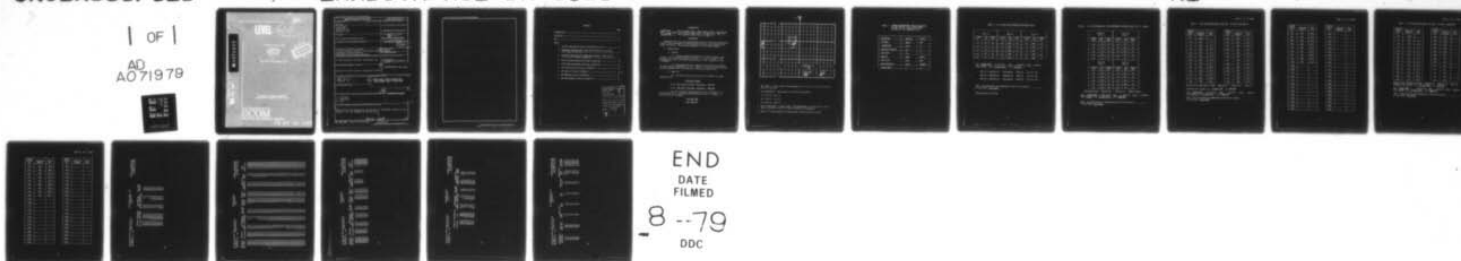
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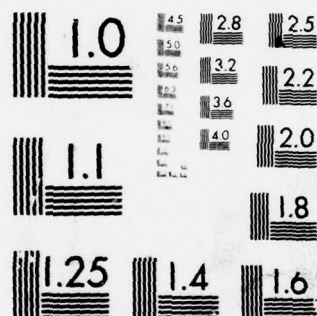
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DR 1028  
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METEOROLOGICAL DATA REPORT

19702A GSRS  
Missile No. 021  
Round No. B-18  
14 June 1979

by

White Sands Meteorological Team

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REFM  
JUL 30 1979  
RECEIVED

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ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR 1028	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
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		6. PERFORMING ORG. REPORT NUMBER
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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) 1. Ballistics 2. Meteorology 3. Wind		14 ERADCOM/ASL-DR-1028
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19702A GSRS, Missile No. 021, Round No. B-18, are presented in tabular form.		



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## INTRODUCTION

19702A GSRS, Missile Number 021, Round Number B-18, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0830 MDT, 14 June 1979. The scheduled launch time was 0830 MDT.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

## SITE AND ALTITUDE

LC-33 1020 meters (30-meter increments) 0820 MDT

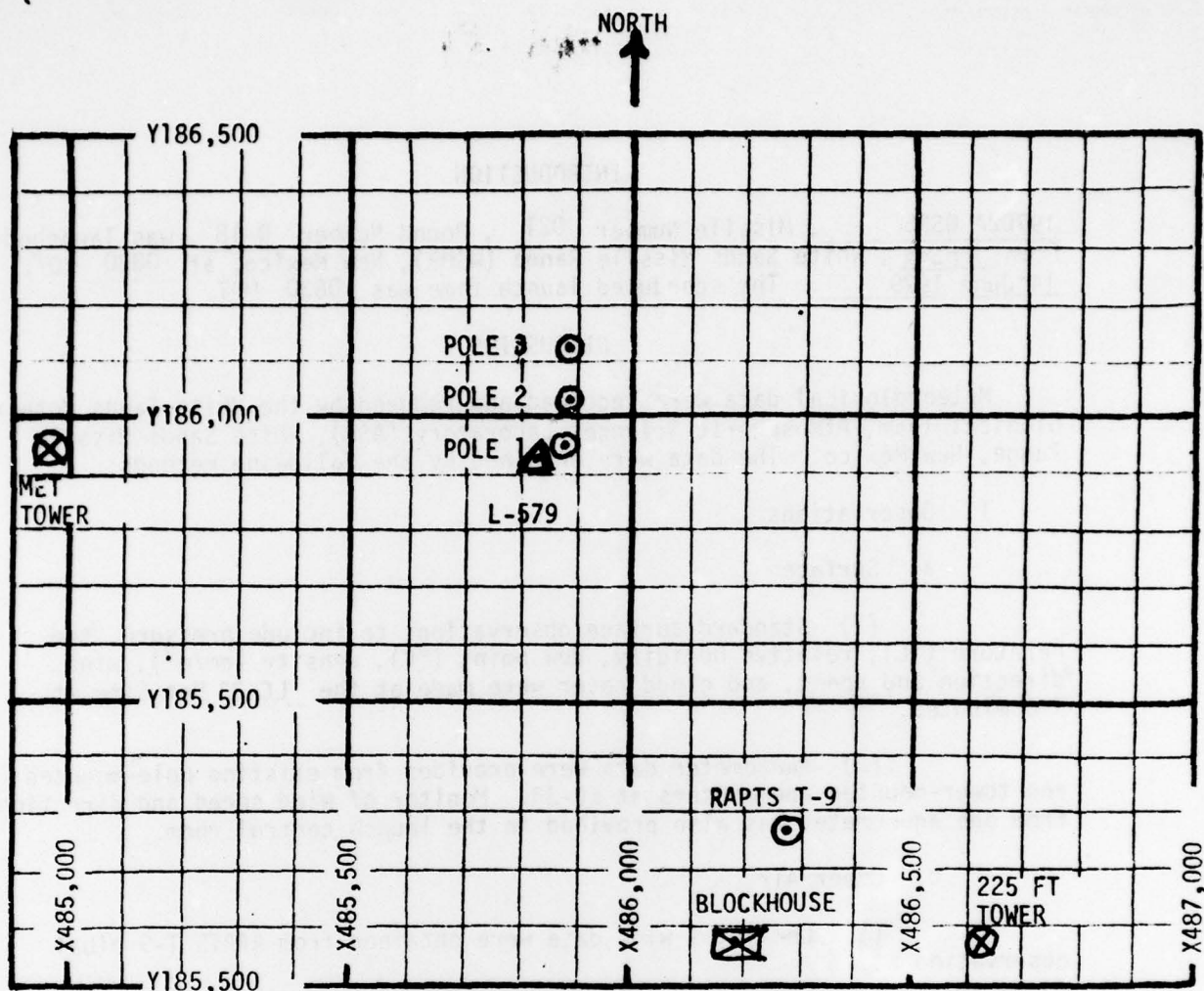
LC-33 1020 meters (30-meter increments) 0830 MDT

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 27,500 feet in 500-foot increments.

## SITE AND TIME

SMR 0800 MST





1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
  - (a) Pole #1 - 38.7 ft
  - (b) Pole #2 - 53.0 ft
  - (c) Pole #3 - 83.6 ft
3. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.
4. RAPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar



TABLE 1. SURFACE OBSERVATIONS TAKEN AT 0830 MDT,  
14 JUNE 1979 AT LC-33, 19702A GSRS,  
MISSILE NO. 021, ROUND NO. B-18

ELEVATION	3977.30	FT/MSL
PRESSURE	884.4	MBS
TEMPERATURE	21.8	°C
RELATIVE HUMIDITY	29	%
DEW POINT	2.9	°C
DENSITY	1040	GM/M <sup>3</sup>
WIND SPEED	Calm	MPH
WIND DIRECTION	Calm	DEGREES
CLOUD COVER	3	Ci

TABLE 2. LC-33 FIXED POLE ANEMOMETER-MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	M*	01	-30	000	00	-30	062	03
-20	M*	02	-20	000	00	-20	062	04
-10	M*	02	-10	048	01	-10	062	04
0.0	M*	02	0.0	048	01	0.0	062	04
+10	M*	02	+10	060	01	+10	062	03

Type 19702A GSRS, Missile No. 021, Round No. B-18 launched  
from LC-33 on 14 June 1979 at 0830 MDT.

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL

NOTE: Wind directions are referenced to the firing azimuth \_\_\_\_\_  
or true north true north.

\*Direction pen not inking

TABLE 3. LC-33 METEOROLOGICAL TOWER ANEMOMETER-MEASURED WINDS (202 FT. TOWER)

LEVEL #1 12 ft.			LEVEL #2 62 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	105	02	-30	070	02
-20	105	02	-20	088	03
-10	102	02	-10	060	02
0.0	082	02	0.0	047	02
+10	059	02	+10	047	02
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	000	00	-30	087	02
-20	000	00	-20	087	02
-10	057	01	-10	085	01
0.0	000	00	0.0	000	00
+10	048	02	+10	M*	01

WTSM Coordinates: X484,982.64 Y185,957.73 H3983.00 (base)

Type 19702A GSRS, Missile No. 021, Round No. B-18 launched  
from LC-33 on 14 June 1979 at 0830 MDT.

NOTE: Wind directions are referenced to the firing azimuth \_\_\_\_\_  
or true north true north.



TABLE 4. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	Calm	
30	195	1.3
60	195	2.7
90	195	4.0
120	195	5.3
150	195	6.6
180	195	8.0
210	195	9.3
240	195	10.6
270	195	11.9
300	195	13.3
330	195	14.6
360	195	15.3

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	195	15.1
420	195	15.0
450	195	14.9
480	195	14.7
510	195	14.6
540	195	14.5
570	195	14.3
600	195	14.2
630	194	14.0
660	194	13.9
690	194	14.5
720	195	15.2
750	195	15.9

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30

Released from LC-33 on 14 June 1979 at 0820 MDT .

Type 19702A GSRS , Missile No. 021 , Round No. B-18 launched from LC-33 on 14 June 1979 at 0830 MDT .

NOTE: Wind directions are referenced to the firing azimuth or true north true north .



HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	195	16.6
810	196	17.3
840	196	18.0
870	196	18.7
900	196	19.4
930	197	20.1
960	197	20.8
990	196	21.2
1020	195	21.3
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

TABLE 5. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	Calm	
30	193	1.3
60	193	2.5
90	193	3.8
120	193	5.1
150	193	6.3
180	193	7.6
210	193	8.9
240	193	10.1
270	193	11.4
300	193	12.7
330	193	14.0
360	193	14.8

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	192	
420	192	
450	192	
480	192	
510	192	
540	191	
570	191	
600	191	
630	191	
660	191	
690	192	
720	192	
750	193	

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30  
 Released from LC-33 on 14 June 1979 at 0830 MDT.

Type 19702A GSRS, Missile No. 021, Round No. B-18 launched  
 from LC-33 on 14 June 1979 at 0830 MDT.

NOTE: Wind directions are referenced to the firing azimuth \_\_\_\_\_  
 or true north true north.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	194	18.5
810	195	18.9
840	196	19.2
870	196	19.6
900	197	19.9
930	198	20.3
960	198	20.6
990	198	20.8
1020	197	20.7
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		



STATION ALTITUDE 3997.30 FEET MSL  
14 JUNE 79 0800 HRS MST  
ASCENSION NO. 187

SIGNIFICANT LEVEL DATA  
1650060187  
S M R

GEODETTIC COORDINATES  
32.48034 LAT DEG  
106.42307 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
883.2	3997.3	24.6	24.0
875.8	4238.1	22.4	25.0
856.2	4681.5	20.7	26.0
850.0	5088.0	21.9	25.0
807.0	6563.7	21.1	24.0
712.0	10008.4	12.9	22.0
700.0	10536.7	12.4	19.0
675.8	11502.7	11.1	17.0
596.6	14874.1	3.9	17.0
515.2	18715.5	-6.7	18.0
500.0	19482.3	-8.2	18.0
400.0	25051.6	-20.2	18.0
382.6	26132.9	-21.7	18.0
355.4	27902.6	-26.8	19.0



STATION ALTITUDE 3997.30 FEET MSL  
14 JUNE 79 0800 HRS MST  
ASCENSION NO. 187

UPPER AIR DATA  
1650060187  
S M R

GEODETIC COORDINATES  
32.48034 LAT DEG  
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
3997.3	883.2	24.6	2.7	24.0	1030.1	673.3	100.0	1.9	1.000261
4000.0	883.1	24.6	2.7	24.0	1030.0	673.3	100.7	1.9	1.000261
4500.0	867.8	21.7	1.1	25.4	1022.3	669.9	169.7	4.7	1.000257
5000.0	852.6	21.4	.8	25.4	1005.6	669.6	181.5	8.9	1.000252
5500.0	837.8	21.7	.7	24.7	987.0	669.9	185.0	13.2	1.000248
6000.0	823.2	21.4	.2	24.4	970.8	669.6	189.1	15.9	1.000243
6500.0	808.8	21.1	-.2	24.0	954.7	669.3	193.6	16.6	1.000239
7000.0	794.5	20.1	-1.2	23.8	941.4	668.0	195.2	16.4	1.000234
7500.0	780.4	18.9	-2.4	23.5	928.6	666.6	194.0	15.4	1.000230
8000.0	766.6	17.7	-3.5	23.2	916.0	665.2	189.9	13.8	1.000225
8500.0	753.0	16.6	-4.7	22.9	903.5	663.8	182.2	11.8	1.000221
9000.0	739.7	15.4	-5.8	22.6	891.2	662.4	172.8	10.6	1.000217
9500.0	726.6	14.2	-7.0	22.3	879.1	661.0	162.3	10.0	1.000212
10000.0	713.7	13.1	-8.1	22.0	867.2	659.7	164.8	8.9	1.000209
10500.0	700.9	12.4	-10.4	19.2	853.7	658.9	172.6	7.6	1.000203
11000.0	688.3	11.8	-11.7	18.0	840.4	658.0	192.2	6.8	1.000199
11500.0	675.9	11.1	-13.0	17.0	827.3	657.2	214.0	7.0	1.000195
12000.0	663.5	10.0	-13.9	17.0	815.2	650.0	218.7	6.5	1.000191
12500.0	651.3	9.0	-14.7	17.0	803.4	654.7	223.6	6.1	1.000188
13000.0	639.4	7.9	-15.6	17.0	791.7	653.5	223.6	5.8	1.000165
13500.0	627.7	6.8	-16.5	17.0	780.2	652.2	221.5	5.6	1.000182
14000.0	616.2	5.8	-17.4	17.0	768.9	650.9	208.1	6.0	1.000179
14500.0	604.9	4.7	-18.2	17.0	757.7	649.7	199.0	6.6	1.000176
15000.0	593.7	3.6	-19.1	17.0	746.9	648.3	197.5	6.8	1.000173
15500.0	582.5	2.2	-20.2	17.2	736.5	646.7	196.9	6.9	1.000170
16000.0	571.5	.8	-21.2	17.3	726.2	645.0	197.5	6.6	1.000167
16500.0	560.7	-.6	-22.3	17.4	716.1	643.4	194.8	6.7	1.000165
17000.0	550.1	-2.0	-23.3	17.6	706.2	641.7	187.6	7.2	1.000162
17500.0	539.7	-3.3	-24.4	17.7	696.4	640.1	185.3	7.5	1.000160
18000.0	529.5	-4.7	-25.5	17.8	686.8	638.4	189.5	7.6	1.000157
18500.0	519.5	-6.1	-26.5	17.9	677.3	636.8	195.6	7.5	1.000155
19000.0	509.5	-7.3	-27.5	18.0	667.2	635.4	206.4	6.9	1.000152
19500.0	499.6	-8.2	-28.3	18.0	656.8	634.2	213.7	6.6	1.000149
20000.0	489.7	-9.3	-29.2	18.0	646.4	632.9	221.1	6.4	1.000147
20500.0	480.0	-10.4	-30.1	18.0	636.2	631.6	225.1	6.1	1.000144
21000.0	470.5	-11.5	-31.0	18.0	626.1	630.3	228.1	5.7	1.000142
21500.0	461.2	-12.5	-31.9	18.0	616.3	629.0	241.7	5.4	1.000140
22000.0	452.0	-13.6	-32.8	19.0	606.6	627.7	259.3	5.7	1.000137
22500.0	443.1	-14.7	-33.7	18.0	597.0	626.4	264.4	6.5	1.000135
23000.0	434.3	-15.8	-34.6	18.0	587.5	625.1	268.4	7.4	1.000133

STATION ALTITUDE 3997.30 FEET MSL		UPPER AIR DATA		GEODETIC COORDINATES	
14 JUNE 79		1650060187		32.48034 LAT DEG	
ASCENSION NO. 187		S M R		106.42307 LON DEG	

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
23500.0	425.7	-16.9	-35.5	18.0	578.4	623.8	262.9	8.0	1.000131
24000.0	417.2	-17.9	-36.4	18.0	569.4	622.4	258.9	8.5	1.000128
24500.0	408.9	-19.0	-37.3	18.0	560.4	621.1	259.5	7.5	1.000126
25000.0	400.8	-20.1	-38.2	18.0	551.7	619.8	262.0	6.0	1.000124
25500.0	392.7	-20.8	-38.8	18.0	542.0	618.9	255.1	4.1	1.000122
26000.0	384.7	-21.5	-39.4	18.0	532.5	618.0	225.7	2.4	1.000120
26500.0	376.8	-22.8	-40.3	18.2	524.1	616.5			1.000118
27000.0	369.0	-24.2	-41.4	18.5	516.3	614.7			1.000116
27500.0	361.4	-25.6	-42.5	18.8	508.6	612.9			1.000114

STATION ALTITUDE 3997.30 FEET MSL  
14 JUNE 79 0800 HRS MST  
ASCENSION NO. 187

MANDATORY LEVELS  
1650060187  
S M R

GEODETIC COORDINATES  
32.48034 LAT DEG  
106.42307 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(IN)	SPEED KNOTS
850.0	5084.	21.9	1.0	25.	182.4	9.6
800.0	6805.	20.5	-8	24.	195.6	16.8
750.0	8618.	16.3	-4.9	23.	179.9	11.4
700.0	10526.	12.4	-10.5	19.	173.2	7.5
650.0	12551.	8.9	-14.8	17.	223.6	6.1
600.0	14705.	4.2	-18.6	17.	198.3	6.7
550.0	17000.	-2.0	-23.4	18.	167.4	7.2
500.0	19455.	-8.2	-28.2	18.	215.4	6.6
450.0	22110.	-13.9	-33.0	18.	262.5	5.8
400.0	25009.	-20.2	-38.3	18.	262.3	5.8



